

Claims

[c1] What is claimed is:

1.A method of packet detection, wherein a receiver receives an input signal, the input signal comprising a packet, and the packet comprising a preamble which comprises a plurality of pseudo-noise (PN) codes, the method comprising:

obtaining a correlation of the input signal;

detecting a peak power of the input signal; and

determining if the packet is detected according to the correlation and the peak power of the input signal.

[c2] 2.The packet detection method in claim 1 further comprising filtering the input signal.

[c3] 3.The packet detection method in claim 1 further comprising determining the periodicity of peaks in the preamble.

[c4] 4.The packet detection method in claim 3 wherein determining the periodicity of the preamble comprises performing a convolution for a conjugate of a PN code and the PN codes to generate a processed preamble.

- [c5] 5.The packet detection method in claim 1 wherein to obtain a correlation of the input signal comprises obtaining a correlation of the processed preamble.
- [c6] 6.The packet detection method in claim 4 wherein detecting a peak power of the input signal comprises detecting a peak power of the processed preamble.
- [c7] 7.The packet detection method in claim 1 further comprising obtaining an average power of the preamble.
- [c8] 8.The packet detection method in claim 7 wherein the packet is detected when the ratio of the correlation to the average power of the preamble is larger than a predetermined value and when the ratio of the peak power to the average power of the noise is large than another predetermined value.
- [c9] 9.The packet detection method in claim 1 further comprising obtaining an average power of noise of the preamble.
- [c10] 10.The packet detection method in claim 9 wherein the packet is detected when the ratio of the correlation to the average power of the preamble is larger than a predetermined value and when the ratio of the peak power to the average power of the noise is large than another predetermined value.

[c11] 11.A method of packet detection, wherein a receiver receives an input signal, the input signal comprising a packet, and the packet comprising a preamble which comprises a plurality of pseudo-noise (PN) codes, the method comprising:

obtaining a correlation of the input signal;

detecting a peak power of the input signal; and

a step for determining if the packet is detected according to the correlation and the peak power of the input signal.

[c12] 12.A packet detecting device comprising:

a receiving unit for receiving an input signal, the input signal comprising a packet, the packet comprising a preamble;

a convolution operating unit connected to the receiving unit for performing a convolution of the input signal;

a correlation calculating module connected to the convolution operating unit for obtaining a correlation of the input signal;

a peak power detecting module connected to the convolution operating unit for detecting a peak power of the input signal; and

a determining module connected to the correlation calculating module and the peak power detecting module comprising a determining unit which determines if the

packet is detected.

- [c13] 13.The packet detecting device in claim 12 wherein the correlation calculating module comprises a power calculating unit for obtaining average power of the preamble.
- [c14] 14.The packet detecting device in claim 13 wherein the correlation calculating module further comprises a division unit for dividing the correlation of the preamble by the average power of the preamble and outputting a division signal to the determining module.
- [c15] 15.The packet detecting device in claim 13 wherein the correlation calculating module further comprises a multiplication unit for multiplying the average power of the preamble by a predetermined value and outputting a multiplication signal to the determining module.
- [c16] 16.The packet detecting device in claim 12 wherein the peak power detecting module comprises a power calculating unit for obtaining average power of noise of the preamble.
- [c17] 17.The packet detecting device in claim 16 wherein the peak power detecting module further comprises a division unit for dividing the peak power of the preamble by average power of the noise and outputting a division signal to the determining module.

- [c18] 18.The packet detecting device in claim 16 wherein the peak power detecting module further comprises a multiplication unit for multiplying the average power of the noise by a predetermined value and outputting a multiplication signal to the determining module.
- [c19] 19.The packet detecting device in claim 14 wherein the peak power detecting module comprises a power calculating unit for obtaining average power of noise of the preamble.
- [c20] 20.The packet detecting device in claim 16 wherein the peak power detecting module comprises a power calculating unit for obtaining average power of noise of the preamble.
- [c21] 21.The packet detecting device in claim 19 wherein the peak power detecting module further comprises a division unit for dividing the peak power of the preamble by average power of the noise and outputting a division signal to the determining module.
- [c22] 22.The packet detecting device in claim 20 wherein the peak power detecting module further comprises a multiplication unit for multiplying the average power of the noise by a predetermined value and outputting a multiplication signal to the determining module.

- [c23] 23.The packet detecting device in claim 17 wherein the determining module comprises a comparison unit for comparing the division signal of the peak power detecting module with a predetermined value.
- [c24] 24.The packet detecting device in claim 14 wherein the determining module further comprises a comparison unit for comparing the division signal of the correlation calculating module with a predetermined value.
- [c25] 25.The packet detecting device in claim 15 wherein the determining module further comprises a comparison unit for comparing the multiplication signal of the correlation calculating module with the correlation of the preamble.
- [c26] 26.The packet detecting device in claim 18 wherein the determining module further comprises a comparison unit for comparing the multiplication signal of the peak power detecting module with the peak power of the preamble.
- [c27] 27.The packet detecting device in claim 23 wherein the determining module comprises a comparison unit for comparing the division signal of the peak power detecting module with a predetermined value.
- [c28] 28.The packet detecting device in claim 25 wherein the

determining module further comprises a comparison unit for comparing the multiplication signal of the peak power detecting module with the peak power of the preamble.

[c29] 29.The packet detecting device in claim 27 wherein the determining module further comprises a determining unit for determining if the packet arrives according to comparison results of the comparison unit.

[c30] 30.The packet detecting device in claim 28 wherein the determining module further comprises a determining unit for determining if the packet arrives according to comparison results of the comparison unit.